Glan-Foucault Calomel IR Polarizer

Calomel crystalline polarizers are the best choice for the mid-IR (5-17µm) applications requiring high Extinction Ratio (>1: 10 000) and power load light source resistance. Calomel Polarizers are commonly used to polarize unpolarized sources, attenuate unpolarized radiation, or act as a beam splitters.

About

Calomel IR polarizers are the only crystalline prismatic polarizers applicable in the mid-IR and LWIR spectral regions on the market. Beside the Calomel prismatic polarizers, only wire grid systems are currently available with no other birefringent crystal transparent above 6µm. The combination of Calomel´s two unique material properties: a high value of birefringence (Δn=0.683) and a wide transparency range (0.4µm-17µm), makes it a great material for mid-infrared polarizers, beam splitting and phase delay components.

Another significant advantage of Calomel crystal is that the material is optically positive, so GF polarizer transmits the ordinary (o) beam, whereas the extraordinary (e) one is reflected to the side and may be used for the application if required. This is an exceptional feature of mercurous chloride material.

The escape beam is not fully polarized, and only the transmitted ordinary (o) ray should be used for applications that require a high-quality, polarized beam.

Product Highlights

- **High ER contrast** **(>1: 10 000)**
- **Broadband transparency VIS to mid-IR** **(0.4µm - 17µm)**
- **Highest birefringence on the market** **(Δn = 0.683)**
- **Positive uniaxial crystal** **($n_e > n_o$)**

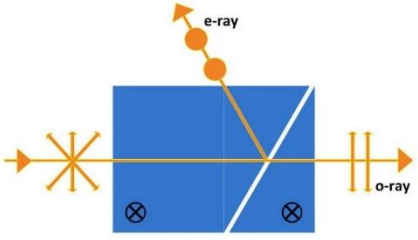
Key Features

- Made of high purity Calomel monocrystals
- Transmitted and polarized ordinary o-ray (positive)
- High extinction ratio (ER) values compared to market competitors (wire-grid systems)
- 10x10mm or 15x15mm clear aperture
- Applicable for high-power CW lasers
- Mounted in 360° rotational protective housing
- 40-20 Scratch-Dig surface quality of input and exit faces

Applications

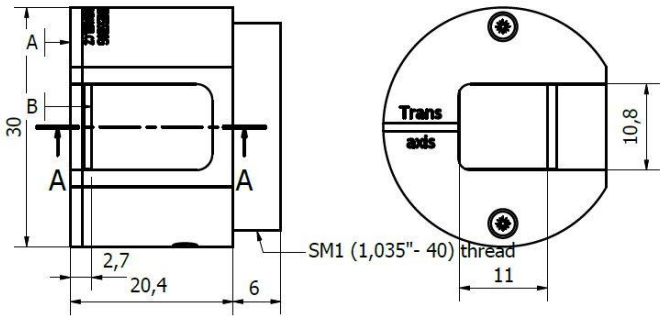
- Infrared spectroscopy of materials (polymers and crystallography)
- Infrared microscopy (sample characterization)
- MWIR thermal imaging systems
- Thin film measurement
- Analysis in infrared astronomy
- Laser polarization and beam attenuation
- Thermal imaging

Technical Specifications

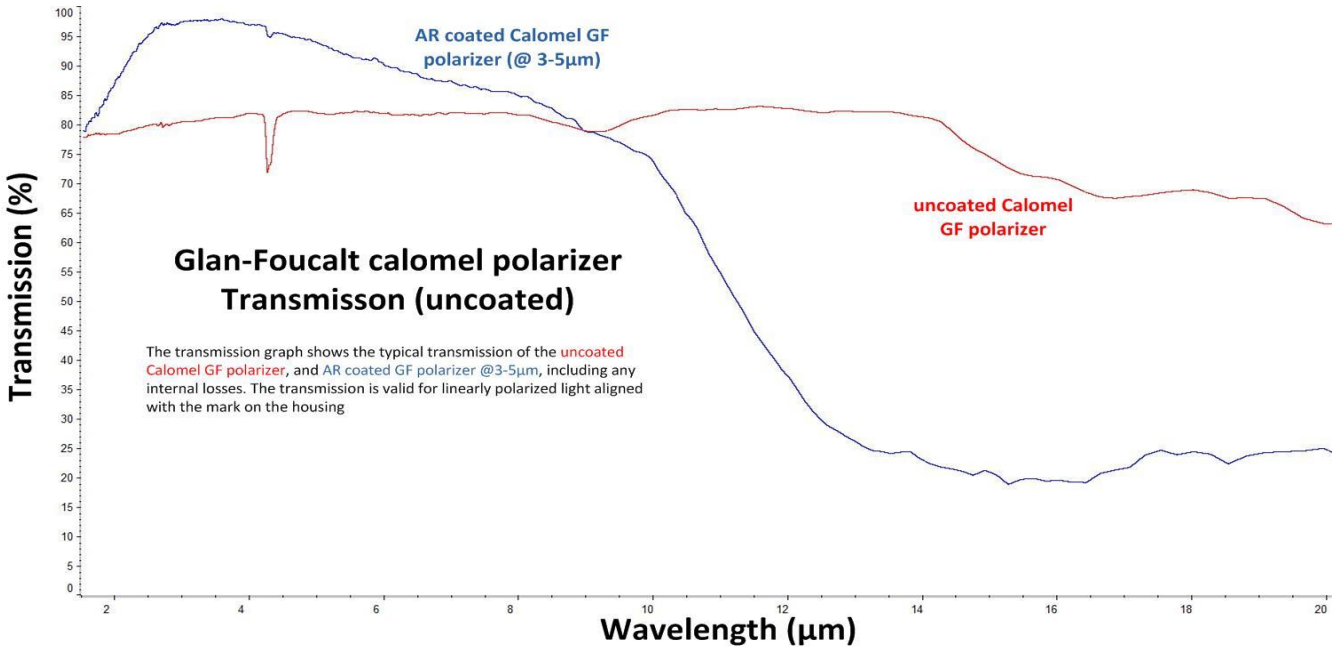


The Glan-Foucault polarizers takes advantage of highly birefringent mercurous chloride (calomel) monocrystals to separate the ordinary and extraordinary rays. The total internal reflection is responsible for the e-ray escaping the first prism by polished side port and leaving the ordinary ray passing thru the second compensation prism in direction of the incident beam. Because the incident angle at the prism interface is close to the Brewster angle for the o-ray, the insertion loss is relatively low although still slightly higher than typical cemented designs.

BBT – MATERIALS PROCESSING



Parameter	GF10	GF15
Substrate	High purity Mercurous Chloride monocrystal (Calomel)	
Design	Air-Spaced	
Transmission range	0.4 - 17µm	
Surface quality	40 – 20 Scratch Dig	
Clear aperture	10.0 mm x 10.0 mm	15.0 mm x 15.0 mm
AR Coating	2-6µm upon request	
Housing	Black anodized body, DIA 30.0 mm x 26.4 mm	
FOV	± 10°	



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